

REMARKS

Claims 21-23, 25 and 42-64 are currently pending, with claims 21, 47 and 56 being independent. Claims 43-64 have been added. No new matter has been introduced.

Claims 21 and 42 have been rejected as being anticipated by Iwasaki (JP 08-288515), claim 22 has been rejected as being unpatentable over Iwasaki in view of Erhart (U.S. Patent No. 5,572,211), and claims 23 and 25 have been rejected as being unpatentable over Iwasaki in view of den Boer (U.S. Patent No. 5,539,219). Applicant requests withdrawal of these rejections.

Claim 21 is directed to a personal computer that includes a semiconductor film provided over a substrate and comprising a source region, a drain region and a channel formation region provided between the source region and the drain region, and a gate electrode provided adjacent to the channel formation region with a gate insulating film therebetween. Claim 21 further recites that lattices are continuously connected to each other at a grain boundary of the semiconductor film.

As described in the specification, thin rod-shaped (or column-shaped) crystals (as recited in new claim 44) or thin flattened rod-shaped crystals (as recited in new claim 45) grow in the semiconductor film. (See page 13 of the specification.) As also described in the specification, lattices are continuously connected to each other at the crystal grain boundaries of the rod-shaped or flattened rod-shaped crystals. This state is described with reference to Figs 17A to 17D. (See pages 14-15 of the specification.)

As described in the specification, in the HRTEM photograph shown in Fig. 17A, it is confirmed that, at the crystal grain boundaries seen at the center of the photograph from top to bottom, adjacent crystal regions are properly and continuously connected to each other. Fig. 17B shows schematically and simply the structure shown in Fig. 17A. As shown in Fig. 17B, although the lattice images with different directions collide with each other at the crystal grain boundaries, the drawing means that since atoms constituting the different crystal regions correspond to each other respectively at the boundaries, lattice defects such as unpaired bonds (dangling bonds) are not formed. (See page 15 of the specification.)

As shown in the application at Figs. 17C and 17D, and discussed in the application at page 16, lines 5-22, defects such as dangling bonds in the grain boundaries of a semiconductor film may reduce performance of a device employing that semiconductor film by acting as traps for charge carriers. Thus, by eliminating these defects and causing the lattices to be continuously connected to each other at a grain boundary, device performance may be improved.

As explained above, the adjacent crystal regions are properly and continuously connected to each other. That is, the lattices are continuous in the boundary (crystal grain boundary) between the respective rod-like crystals (which may be said as needle-like crystals) so that the boundary is very excellent in consistency (conformity), as described in page 73 of the specification.

Such a semiconductor film would not have been inherent in Iwasaki in that the boundary of the semiconductor film discussed above has excellent consistency while Iwasaki's grain boundary does not necessarily have excellent consistency. That is, continuous connection of lattices would not have been inherent in Iwasaki. Rather, Iwasaki merely shows a grain boundary, and provides no indication that the grain boundary includes continuous connections.

Accordingly, for at least these reasons, the rejection of claim 21 should be withdrawn.

As noted in applicant's prior responses, Erhart and den Boer do not remedy the failure of Iwasaki. Accordingly, the obviousness rejections should also be withdrawn for the reasons discussed above.

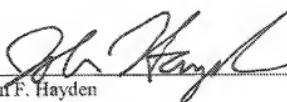
New independent claims 47 and 56 include the features of claim 21 and are allowable for at least the reasons discussed above, as are their dependent claims.

Applicants submit that all claims are in condition for allowance.

The fees in the amount of \$1590 for the two-month extension of time (\$450), RCE (\$790) and 7 extra dependent claims (\$350) are being paid concurrently herewith on the Electronic Filing System (EFS) by way of Deposit Account authorization. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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